REMARKS

Introduction

Applicant(s) and applicant's attorney express appreciation to the Examiner for the courtesies extended during the recent interview held on July 28, 2004. This response includes the substance of the Interview. Claims 1-39 are pending, wherein claims 1-4, 7-8, 9, 11, 14-15, 16-19, 20, 26, 28, 30-31, 33, and 36-39 have been amended. For the convenience of the Examiner, the issues are discussed in the order raised in the Office Action mailed April 29, 2004. Reconsideration and allowance for the above-identified application are now respectfully requested.

Specification

The specification has been amended in the Amendments to the Specification section of this response as discussed in the Interview to overcome the objections of the Examiner identified in paragraph 5 of the Office Action.

Claim Rejections under 35 U.S.C. § 112

Response to Paragraph 7 of the Office Action

Claims 1-4, 7-9, 11, 14, 16-20, 28-31, 33, and 36-39 were rejected were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More particularly, claims 1-4, 7-9, 11, 14, 16-20, 28-31, 33, and 36-39 are rejected for reciting "the acts of" or "the act of". While the claims have been amended as discussed in the interview to delete this

language, Applicants believe that such language is appropriate claim language in view of 35 U.S.C. § 112, paragraph 6.

Claims 1, 8, 9, 16, 28, and 29 have also been amended as discussed in the interview to overcome the rejection under § 112 as identified in paragraph 7 of the Office Action. More specifically, "In a network that includes . . ." has been deleted from claim 1. The language of ". . . request, wherein, from the standpoint of the I/O driver, the write request virtually appears to have been stored . . ." associated with claims 8, 9, and 26 has been amended to overcome the rejection. Also, "In a first server . . ." in claim 16 has been deleted.

Response to Paragraph 8 of the Office Action

Claims 1, 9, 16, and 20 were rejected under 35 U.S.C. § 112, second paragraph. For example, the Office Action rejected claim 1 as reciting "executing the copy of the write request at the second server . . , wherein the data, from the standpoint of the first server and the second server, virtually appears to have been stored in a shared storage node . . ." The Office Action indicates that this claim limitation is vague, unclear, and confusing. The Office Action further suggests that claims 9, 16, and 20 have a similar problem. Claims 1, 9, 16, and 20 have been amended as discussed at the Interview to overcome this rejection. Claim 1 as amended recites, for example

> executing the copy of the write request at the second server so as to write the data to the second mass storage device, thereby mirroring the data at the second mass storage device, wherein the data is stored in a virtual shared storage node from the standpoint of the first server and the second server.

Claims 9, 16, and 20 have been amended as discussed in the interview to overcome this rejection under § 112.

Response to Paragraph 9 of the Office Action

Claims 1, 16, and 28 are rejected as not saying where the write request comes from prior to being received at the first server. Claims 1, 16, and 28 have been amended to require that the write request comes from "a network device". As discussed at the interview, this overcomes the rejection under § 112.

Response to Paragraph 10 of the Office Action

The Office Action indicated that claim 26 contains a conditional statement and that correction is required. Claim 26 has been amended to overcome the rejection under § 112.

Response to Paragraph 11 of the Office Action

Claims 1, 9, 16, 28 are rejected under 35 U.S.C. § 112, second paragraph as not being sufficiently precise due to combining of two separate statutory classes of invention in a single claim. Claims 1, 9, 16, and 28 have been amended as discussed at the interview and overcome this rejection. Claims 2-8, 10-15, 17-19, and 29-39 overcome the rejection as well as they are dependent, respectfully, from claims 1, 9, 16, 20, and 28.

Claim Rejections under 35 U.S.C. § 101

Claims 1-19 and 28-39 are rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. As discussed at the interview, the amendments presented herein with respect to the rejections under § 112 also overcome the rejection under § 101.

Claim Rejections under 35 U.S.C. § 102

Claims 20-22 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,157,663 (Major). For reasons discussed below and as memorialized in the Interview

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Summary, claims 20-22 as amended overcome the art of record and are believed to be in condition for allowance.

Major is a reference that teaches a fault tolerant computer system. Major provides a software solution for synchronizing a backup system. As discussed at the interview, however, the manner in which Major synchronizes a backup system does not teach or suggest claims 20-22.

For example, Major provides a primary server and a secondary server each having an operating system that includes an OS engine and an I/O engine. *See* col. 4, lines 5-7. Major synchronizes the backup system by separating the OS engine from the I/O engine and causing the OS engine to operate as if it were a finite state automata having a one dimensional view of the system. *See* col. 4, lines 59-62.

The one dimensional view of the system is achieved using a event message queue at <u>both</u> the primary server and the secondary server. As taught by Major, the primary server receives data or events from a network. The I/O engine of the primary server provides these messages to the I/O engine of the secondary server over a bus. The messages are placed in event queues by the respective I/O engines. The event queue of the primary server and the event queue of the secondary server remove the time dependency from the system such that all asynchronous events are converted into a synchronous string of event messages in two separate queues. The I/O engine of the primary server provides the messages in the primary event queue to the OS engine of the primary server and, separately, the I/O engine of the secondary server provides the messages in the secondary event queue to OS engine of the secondary server. Using these messages, each server has an event queue that provides a one dimensional view of the system. *See* col. 4, lines 45-62.

The teachings of Major are further illustrated in Figure 4B, which illustrates that events are communicated between the primary server and the secondary server and are then placed in the respective queues of the primary server and the secondary server. Because the event queues are independent, it appears that the disk of the secondary server cannot be written to by the primary server as it would adversely affect the messages in the event queue of the secondary server. In other words, the primary server does not control or have write access to the disk of the secondary server because it would interfere with the one dimensional view of the system provided to the secondary server by the secondary event queue. Thus, the respective disks of the primary and secondary servers do not form a virtual storage area network.

Claim 20, in contrast, is a virtual storage area network that requires a means for communicating between the first mirror engine (of a first server) and the second mirror engine (of a second server). The means for communicating determines when the first server or the second server has write access to the first mass storage device and the second mass storage device. The means for communicating thus enables the first mirror engine to mirror to the second mass storage device first data that is also to be written to the first mass storage device. The means for communicating also enables the second mirror engine to mirror to the first mass storage device second data that is also to be written to the second mass storage device.

In other words, the first server can have write access to both the first mass storage device of a first server and a second mass storage device of a second server. This contrasts with Major, as discussed above, which uses event queues that effectively prevent the primary server of Major from having write access to the disk of the second server.

For at least these reasons as discussed at the interview and reflected in the Interview Summary, claim 20 overcomes Major and is believed to be in condition for allowance. Claims 21-22 depend from claim 20 and overcome Major for at least this reason.

Claim Rejections under 35 U.S.C. § 103

Claims 23-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Major in view of U.S. Patent No. 5,276,867 (Kenley). The Office Action cites Kenley to teach that a third server is capable of receiving write requests and read requests from network clients. For at least the reasons discussed above and at the interview regarding Major, the combination of Major and Kenley is overcome and claims 23-27 are believed to be in condition for allowance.

Conclusion

Applicant respectfully notes that the above discussion should not be construed to constitute an exhaustive enumeration of the distinctions between the claims of the present application and the references cited by the Examiner. Instead, such distinctions are presented solely by way of example. Applicant notes further that the arguments presented herein have been made merely to clarify the claimed invention from elements purported by the Examiner to be disclosed by the cited prior art references. Such arguments should not, however, be construed as an acquiescence on the part of the Applicant as to the purported teachings or prior art status of any of the cited references, nor as to the characterization of the cited references advanced by the Examiner. Accordingly, Applicant reserves the right to challenge the purported teaching and prior art status of any and all of the cited references at any appropriate time.

In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney.

Dated this 26th day of August 2004.

Respectfully submitted,

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